

Alternative: Purge Water Management

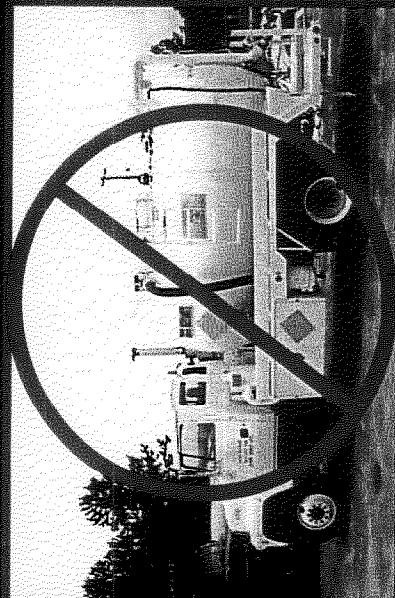
Onsite storage of purge water with onsite or offsite treatment requires

- Dedicated space
- Treatment of 1000s of gallons of purge water
- Storage time restrictions if hazardous
- Waste treatment training
- Transportation equipment

Estimated Cost Savings

*Could result in annual savings of
~\$1,000 per well by eliminating*

- Tankers / water buffaloes / tractors & other equipment
- Multiple training courses
- Waste treatment
- Admin controls
- Personal Protective Equipment



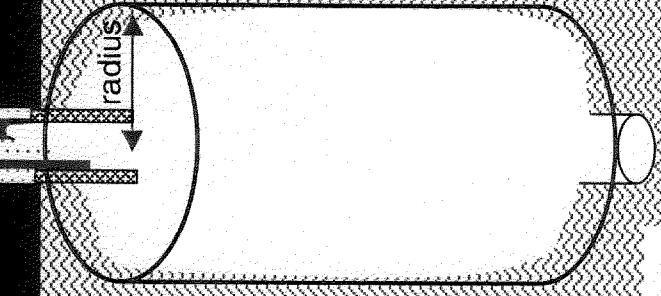
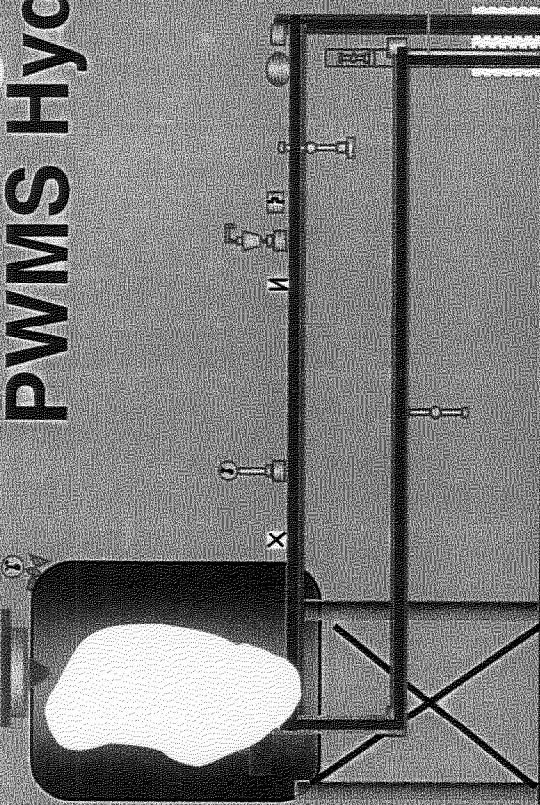
PWMS Cost Savings Relevant Points

- Initial Investment of \$5.7M over 5 years result in **\$15.8M savings over 30 years - Net Savings of \$10.1M**
- **\$520K Savings per Year After Full Implementation**
- **\$1,300 Savings per Well After Full Implementation**

Annual Savings After Full Implementation (000) 396 PWMS Units

	<i>Traditional Method</i>	<i>New Method</i>	
	Prime\$	Total\$	Prime\$ Total\$
<i>Truck Drivers</i>	57	78	6 8
<i>Materials</i>	28	38	3 4
<i>Project Management</i>	122	168	12 16
<i>Equipment</i>	36	49	18 25
<i>Equipment Inspectors</i>	31	43	15 21
<i>PW Engineering</i>	230	316	131 180
<i>ETF Labor Support</i>	24	33	0 0
<i>A & M PWS Ops</i>	214	294	185 254
<i>ETF \$/Gal</i>	12	16	0 0
<i>PWMS Maintenance</i>	0	0	5 7
<i>Total (FY00\$)</i>	754	1035	375 515
<i>Annual Savings</i>	379	520	

PWMS Hydraulic Conductivity



$$\text{Ground water velocity } (\bar{v}) = \frac{(K)(dh/dl)}{n}$$

K = hydraulic conduction
dh/dl = hydraulic gradient
n = porosity

Distance traveled at a given time
 $t = \text{distance}_t = v * t$

If $\text{Distance}_t > 2r + \text{Safety Factor}$ then well is suitable

B
A
C
K
U
P
C
O
D

PWMS Cost Savings Notes	
General	SRS will continue to have to handle some purge water and development water from new wells and or redevelopment of existing wells. Thus, we will not be able to completely eliminate the need for the following items (UNO).
Truck Drivers	Existing drivers will be cross trained such that they may be utilized in other capacities when not handling PW.
Materials	Includes misc. hoses, pumps, consumables, etc. associated with PW handling.
Project Mgmt	Includes general management, planning, and oversight of PW.
Equipment	Includes trucks, water buffaloes, trailers, etc.
Equip Inspections	Includes inspections by HP (RAD), IH (HAZ) and Site Services.
IDW Engineering	Includes sample data review and determination of what needs to be contained.
ETF Labor Support	Includes labor associated with processing of ERD Rad PW at the Effluent Treatment Facility. This is additional labor required above the \$/Gallon cost noted below. (Eliminate Completely)
A & M PWS Ops	Includes labor associated with the operation of the Purge Water Station, which is a holding station for PW & development water prior to being processed through the M-1 Air Stripper.
ETF \$/Gal	Cost of processing water at the ETF. (Eliminate Completely)
PWMS Maintenance	Allowance for misc. maintenance for the PWMSs.

Pre-Deployment Screening Criteria

- *Develop task technical plan for each well*
 - Select wells requiring containerization
 - Point of compliance wells are candidates
 - Ensures no resampling of previous purge water

Regulatory Communication

- Presentation to EPA Regional Offices and State Regulatory agencies
- Presentation to party responsible for well monitoring
- Negotiate PWMS deployment with cognizant regulators
- Discuss Lessons-Learned and successful deployments with sites and regulators

PWMS Deployment Strategy for FY 2000

- *Meet with stakeholders*
- *Evaluate well monitoring program*
- *Establish PWMS candidate wells*
- *Meet and present information to appropriate regulators*
- *Implement PWMS strategy*

Success Metrics

- *State Regulators*
 - Receive a technical basis for groundwater sampling decisions and spend less time in regulatory review
- *Operating Contractor*
 - Optimizes groundwater monitoring expenditures by getting the most information / unit cost
- *DOE*
 - Can divert the unused funding resources for additional scope in environmental remediation

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• Additional Benefits:

- Reduced Worker Exposure
- Reduced Interaction with Regulatory Agencies
- Reduced Risk of Potential Spill
- Waste Minimization
- Reduce Use of Personal Protective Equipment
- Eliminate Waste Handling
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